



Université Blaise Pascal

UNIVERSITÉ BLAISE PASCAL  
U.F.R de Recherche Scientifique et Technique



## CYCLE DE CONFÉRENCES DE CHIMIE

Avec le concours de : *Manufacture Française des Pneumatiques MICHELIN*  
*Centre de Développement Préclinique, Schering-Plough*  
*Fédération de Chimie (FR 2404)*  
*Section Auvergne de la Société Française de Chimie*  
*U.F.R.S.T. / Master de Chimie / Département de Chimie*

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**Mardi 10 Mai 2011 à 16 h (Hors cycle)**

**Salle C Bâtiment de Chimie - (Site des Cézeaux)**

**Pr. Barbara BALLARIN**

*Dipartimento di Chimica Fisica e Inorganica, University of Bologna,  
Italy*

### **Electrosynthesis: A Smart Way For The One-Step Preparation Of Metallic And Bimetallic Nanoparticles on Conductive Surface**

In recent years considerable attention has been drawn to the deposition of metal nanoparticles onto conducting substrates due to its great importance in the fabrication of practical devices such as heterogeneous catalytic systems, electronic sensors, and biosensors. Several methods have been reported to accomplish this purpose among these electrosynthesis has been proved to be very striking because of the simple instrumentation and the capability to readily control the size and morphology of the as-deposited nanostructures through adjusting the electrochemical parameters.

Here we present the electrodeposition studies of Au, Pt, Ag and bimetallic Au-Pt nanoparticles on Indium Tin Oxide (ITO) or and Pure Graphite Sheet (PGS) surfaces. The effect of some variables as: the presence of additives (*i.e.* KI or surfactants), the electrodeposition time, the kind of precursor or the different precursors molar ratio have been also investigated. Morphological observations have been carried out using CVs, SEM, and XRD patterns. Finally, some application as the electrocatalytic activity towards Methanol oxidation in alkaline or acid medium or the reduction of peroxide have been studied.

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